

EASY-OPEN CLOSURE FOR CONTAINER AND METHOD OF USE

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BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates broadly to the field of packaging technology. More specifically, this invention relates to an improved closure for a container that is particularly adapted for use by the disabled and the elderly.

10 2. Description of the Related Technology

Conventional mating closure caps and bottle finish structures for carbonated beverage containers typically utilize a screw type or threaded arrangement between the closure cap and the finish portion. These types of screw caps are mass produced by injection or compression molding and have achieved commercial success mainly in the soft drink industry, where they are applied 15 robotically to the finish portions of filled soft drink bottles on rapidly moving filling lines.

One type of closure that is particularly popular in the packaging of bottled water and sports drinks has a built-in pouring spout that makes it easy to drink directly from the bottle after opening. It is typical for such closures to incorporate a valve element that is actuated by pulling a movable member upwardly in order to permit the contents of the container to be dispensed.

20 Unfortunately, it requires a fair amount of dexterity and physical strength to operate such closures. This makes it difficult for the disabled to use such closures. A need exists to provide an easy open closure for a container that is more suited for use by the disabled than our conventional easy open closures.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the invention to provide an easy open closure for a container that is more suited for use by the disabled than are conventional easy open closures.

In order to achieve the above and other objects of the invention, an easy open closure for a container that is constructed according to one aspect of the invention includes a main body portion that is adapted to be secured to a container, the main body portion having sealing structure that is positioned to prevent fluid from the container from escaping from the container through the main body portion; and a plunger member mounted for movement within the main body portion, the plunger member having a pouring opening and a passage defined therein that is in communication with both the pouring opening and a space within the main body portion that is defined in part by said sealing structure, and wherein the plunger member is movable between a first position and a second position wherein the sealing structure is breached, thereby permitting fluid from the container to flow through the passage to the pouring opening.

According to a second aspect of the invention, a method of opening a closure for a container includes steps of removing protective structure that prevents the depression of a plunger member; depressing the plunger member; and dispensing liquid from the container through a passage that is defined in the plunger member.

These and various other advantages and features of novelty that characterize the invention are pointed out with particularity in the claims annexed hereto and forming a part hereof. However, for a better understanding of the invention, its advantages, and the objects obtained by its use, reference should be made to the drawings which form a further part hereof, and to the accompanying descriptive matter, in which there is illustrated and described a preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is an isometric view of a closure that is constructed according to a preferred embodiment of the invention, shown in a first operative position;

FIGURE 2 is an isometric view of the closure that is depicted in FIGURE 1, showing a 5 second operative position;

FIGURE 3 is a fragmentary isometric view depicting one component of the closure that is shown in FIGURES 1 and 2; and

FIGURE 4 is an isometric view depicting another component of the closure that is shown in FIGURES 1 and 2.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

Referring now to the drawings, wherein like reference numerals designate corresponding structure throughout the views, and referring in particular to FIGURE 1, an easy open closure 10 is constructed and arranged to be mounted on to a container 12 in order to seal 15 an opening 14 of the container 12. Easy open closure 10 according to the preferred embodiment of the invention includes a main body portion 16 having an outer surface 18 that is shaped and sized to seal against the structure of the container 12 that defines the opening 14. In the illustrated embodiment, this is achieved as an interference fit between the main body portion 16 and the container 12. Alternatively, there could be a screw type connection between the main 20 body portion 16 and the container 12 or the two components could be fused or molded together and still be within the spirit of the invention.

Referring briefly to FIGURE 3, which provides a fragmentary perspective view of the main body portion 16, it will be seen that sealing structure 20 is provided within the main body portion 16 for sealing the opening 14 of the container 12 when the closure 10 is mounted to the 25 container 12. In the illustrated embodiment, sealing structure 20 is embodied as a molded panel 22 that is integrally molded with the rest of the main body portion 16 and that provides a barrier

that will stop fluid from within the container 12 from entering the space that is defined within the interior of main body portion 16. One or more areas of weakness may be provided in the sealing structure 20. In the illustrated embodiment, an area of weakness is created by an arcuate score 24 that is defined in the lower surface of the molded panel 22 at a location that is near the juncture 5 of the molded panel 22 and a circumferential outer wall of the main body portion 16 that defines the outer surface 18. The space that is defined within the interior of the main body portion 16 is delimited by a relatively smooth cylindrically shaped inner surface 25 that has a plurality of longitudinally extending grooves 26 defined therein. An annular recess 28 is defined in an upper end of the main body portion 16 immediately above the cylindrically shaped inner wall 25.

10 Annular recess 28 is characterized by having a relatively flat upper surface 29 that is molded so as to be as smooth as possible.

Referring again to FIGURE 1, it will be seen that a plunger member 30 is mounted for longitudinal movement with respect to the main body portion 16 of the closure 10. In FIGURE 1, plunger member 30 is shown in a first operative position with respect to the main body portion 15 16 that is characterized by the flat upper surface 44 of the plunger member 30 being substantially elevated with respect to the flat upper surface 29 of the annular recess 28 of the main body portion 16. As is perhaps best shown in FIGURE 4, plunger member 30 has a pouring opening 32 defined in the upper surface 44 thereof that is in communication with an internal passage defined by walls 34 that in turn is in communication with a space that is defined on a lower end 20 of the plunger member 30. A force concentration member 36 is provided on the lower end of the plunger member 30 for exerting force on the sealing structure 20 when the plunger is depressed, as will be described in greater detail below. Force concentration member 36 is preferably embodied as a tapered projection 38 terminating in a pressure tip 40 that is adapted to bear against molded panel 22 in area adjacent to the score 24 when the plunger member 30 is 25 depressed. As may be seen in FIGURE 4, the relatively flat upper surface 44 of the plunger member 30 is relatively smooth and expansive, making it is easy as possible for a disabled person

to exert downward pressure on the upper surface 44 when it is desired to open the easy open closure 10. To this end, relatively flat upper surface 44 preferably has a surface area of at least 0.5 square inches and more preferably a surface area of at least 0.75 square inches. Flat upper surface 44 is preferably substantially circular in shape and has a circumferential outer rim 46 and 5 a relatively flat lower surface 48 that is molded to be as smooth as possible so as to create a good seal against the upper surface 29 of the annular recess 28 when the plunger member 30 has been completely depressed.

In order to open the easy open closure 10, a disabled person will first disengage releasable protective structure 50 that is provided to prevent accidental depression of the plunger 10 member 30. In the preferred embodiment, releasable protective structure 50 is embodied as a cover member 52 having an oversized thumb tab 54 that is hingedly mounted to the main body portion 16 by a hinge member 56. Preferably, cover member 52 and hinge member 56 are integrally molded together with the main body portion 16. Accordingly, a disabled consumer 15 will engage the oversized thumb tab 54 and lift the cover member 52 to the position in which it is shown in FIGURE 1. The disabled consumer will then press down on the flat upper surface 44 of the plunger member 30, thereby forcing the pressure tip 40 against the molded panel 22 in the area of the score 24. This will cause rupture of the molded panel 22, and the molded panel 22 will continue to tear along the score line 24 until the plunger member 30 is completely depressed so that the underside 48 of the plunger member 30 is sealed together in contact with the flat 20 surface 29 and the outer rim 46 of the plunger member 30 is seated within the annular recess 28 of the main body portion 16, as is illustrated in FIGURE 2. In this position, the second openings 42 that are defined in the distal end of the force concentration member 36 will be positioned beneath the ruptured molded panel 22 into the container 12, thereby ensuring reliable 25 communication between the passageway 34 and the interior of the container 12. The disabled consumer will then be able to pour or drink directly from the closure 10. The closure 10 may then be resealed to some extent by closing the cover member 52.

It is to be understood, however, that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size and arrangement of parts
5 within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.